

many remarkable forms of animal life that the great island of Borneo has yielded, is certainly not the least remarkable. The insect in question is closely related to the *Prisopi**, but is even more profoundly modified for an aquatic life; for it breathes not only in the ordinary fashion amongst insects by means of tracheæ opening by stigmata on the exterior of the body, but also by the structures known as tracheal gills. From each side of its body, in fact, along the lower margins of the sides of the metathorax, there stand straight out five equal small but conspicuous ciliated oval plates, which, when the insect is submerged and its stigmata are closed, doubtless serve to bring the air that is thus shut up within the body into such intimate relation either with the oxygen dissolved in, or with the air in mechanical mixture with, the water as to render diffusion and consequently respiration possible.

The only other insect known to me in which during adult life ordinary aerial respiration and respiration by tracheal gills coexist is *Pteronarcys regalis*, one of the Orthoptera Amphibiotica.

For this remarkable form I beg to propose the name *Cotylosoma dipneusticum*.

The insect, which is a female with rudimentary organs of flight, is between three and four inches in length.

Auriferous Sand in the Neighbourhood of the Seychelle Islands.

By H. J. CARTER, F.R.S. &c.

Belonging to the late Dr. Bowerbank was a little pill-box partly filled with sponge-spicules, and labelled "Dust from the Base of Dr. Farre's *Euplectella*, 26th Feb. 1857." This sponge, designated by Prof. Owen "*Euplectella cucumer*," was stated by Dr. A. Farre (in whose possession it is or was) to have been "given with other presents, by the king of the Seychelle Islands, to Captain Etheridge, R.N., in acknowledgment of some friendly services, with an intimation that it was one of the rarest products of these regions" (Trans. Linn. Soc. vol. xxii. p. 122); and inferring, from actual experience ('Annals,' 1873, vol. xii. p. 463), that the "dust" would be found to contain a variety of spicule forms, indicative of so many of the sponges that must now live, or have lived, in this locality, it was boiled during *six minutes* in strong nitric acid to rid it from all calcareous and soft substances previously to mounting in Canada balsam for more deliberate observation with the microscope. Six slides were thus made, bearing material of different degrees of fineness, from the most subtle that could be preserved to the coarsest in the box, when it was found to contain, as might have been expected, a quantity of sand (for the "dust" came from a mass of sea-bottom still held together in the root-spicules or beard of the *Euplectella*).

But what was most striking, when this sand (about, perhaps, a grain in weight) came to be examined, was the presence of minute

* For an account of the habits of these animals see Andrew Murray in Ann. & Mag. Nat. Hist. 1866, 3rd ser. vol. xviii. p. 265.

fragments of gold and blue sapphire, to the amount apparently of one fiftieth part—the former often united with quartz, and more or less covered by an opaque uncrystalline substance of a yellow-red colour, like that about the “gold-quartz” of California.

This is the first time out of the many “sea-bottoms” examined from different parts of the world that I have found gold present; and as the Seychelle Islands are composed of granite, it seems to me desirable, when the opportunity offers, that they should be prospecting for “auriferous quartz.”

To the different forms of sponge-spicules, which prove to me that the “dust” came from *this Euplectella*, I shall advert on a future occasion.

On a new Marsupial from Australia.
By Prof. R. OWEN, F.R.S. &c.

The Australian marsupial, the subject of my note in the ‘Annals and Magazine of Natural History’ for December 1877, I have since found described in the ‘Proceedings of the Linnean Society of New South Wales,’ Sydney, 1876, p. 33, under the name of *Hypsi-prymnodon moschatus*, by the accomplished Curator of the Australian Museum, E. Pierson Ramsey, F.L.S., C.M.Z.S.

Metamorphosis of the Cantharis (Cantharis (Lytta) vesicatoria).
By M. LICHTENSTEIN.

For a long time the entomologists of all countries have sought to discover the transformations of the Cantharis. In 1837 M. Mulsant, of Lyons, said, in his ‘Histoire des Vésicants,’ “The study of the metamorphoses of the Cantharides will furnish the subject of a curious chapter to the naturalist who shall succeed in tracing their development.”

Since this period I have investigated this question; and now, at length, I believe I can give the entire history from the egg to the pupa.

On the 27th of June I took numerous Cantharides from the ash, selecting fecundated females having the abdomen distended with eggs. Two or three days afterwards they set to work to dig into the earth in the vessel in which I kept them, and, in the little cylindrical holes they formed, deposited masses of from fifty to sixty eggs and more, agglomerated together, and of a hyaline whiteness. About seven days after the oviposition there issued from these eggs larvæ, called by Léon Dufour *Triungulini*, and figured by Réaumur, Ratzeburg, and Mulsant. They are 1 millim. in length, and of a dark brown colour, with the two segments of the meso- and meta-thorax and the first segment of the abdomen whitish. The abdomen is terminated by two long filaments. This was previously known.

After a thousand fruitless trials, I succeeded in getting these larvæ to accept an artificial nourishment, consisting of the stomachs of bees which had just sucked the juices of flowers. These larvæ